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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/724,513

11/26/2003

Adam L. Cohen

P-US054-A-MF

1834

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MICROFABRICA INC.
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EXAMINER

WONG, EDNA

ART UNIT

PAPER NUMBER

1753

MAIL DATE

DELIVERY MODE

05/25/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/724,513

Applicant(s)

COHEN ET AL.

Examiner

Edna Wong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 1-13 and 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Election/Restrictions

Applicant's election without traverse of Specie (e), claims **14-21**, in the reply filed on May 9, 2007 is acknowledged.

The requirement is still deemed proper and is therefore made FINAL.

Accordingly, claims **1-13 and 22** are withdrawn from consideration as being directed to a non-elected invention.

Oath/Declaration

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

page 2, it does not identify US Provisional Application No. 60/429,484 under 35 USC Section 119(e).

page 3, it does not identify the post office address of each inventor.

Drawings

Figures 1(a)-1(c), 2(a)-2(f) and 3(a)-3(c) should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the

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Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Applicants' specification discloses that "Figures 1(a)-1(c), 2(a)-2(f) and 3(a)-3(c) illustrate various aspects of electrochemical fabrication that are known" (page 20, [74]).

Specification

The disclosure is objected to because of the following informalities:

page 16, line 1, the letters "a n" should be amended to the word -- an --.

page 22, line 24, the words -- (not shown) -- should be inserted after the number "112".

page 29, line 3, please amend "??/???,???" with the Application No.

page 29, line 19, please amend "??/???,???" with the Application No.

Appropriate correction is required.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

Claim 14 is objected to because of the following informalities:

Claim 14

line 3, the word -- and -- should be inserted after the word "materials;".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

Claims 14-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14

line 4, "the forming operation" lacks antecedent basis.

line 5, it appears that the "at least one previously formed layer" is the same as the one or more previously deposited layers recited in claim 14, line 3. However, it is

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unclear if it is.

line 8, it appears that "a substrate" is the same as the substrate recited in claim 14, line 2. However, it is unclear if it is.

line 9, it appears that the "one or more materials" is the same as the one or more materials recited in claim 14, line 3. However, it is unclear if it is.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **14-19** are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over **Cohen et al.** (US Patent No.

7,160,429 B2).

Cohen teaches a process for forming a multilayer three-dimensional structure, comprising:

(a) forming a layer of at least one material **2** (= a sacrificial material), **4** (= a structural material) on a substrate **6** that may include one or more previously deposited layers of one or more materials (Fig. 2C); and

(b) repeating the forming operation of "(a)" one or more times to form at least one subsequent layer on at least one previously formed layer (= after repetition of this process for all layers) [Fig. 2E] to build up a three-dimensional structure from a plurality layers **20** (= the multi-layer structure) [col. 5, line 1];

wherein the forming of at least one layer, comprises:

(1) supplying a substrate **6** on which one or more successive depositions of one or more materials may have occurred and will occur;

(2) supplying a mask **8** (= conformable contact mask, CC mask) that comprises at least one void **16** (= openings) and at least one surrounding protrusion of material **10** (= a patterned conformable material) [col. 4, lines 43-46];

(3) bringing the at least one protrusion **10** of the mask into proximity to or into contact with the substrate **6** (= the conformal portion of the CC mask is pressed against the substrate) so as to form at least one electrochemical process pocket **16** (= openings) having a desired registration with respect to any

previous depositions and providing a desired electrolyte **14** (= a plating solution) within the at least one electrochemical process pocket (= located within the openings **16** in the conformable material **10**) [col. 4, lines 46-49]; and

(4) applying a desired electrical activation (= an electric current) between at least one electrode **12**, that may be part of the mask or separate therefrom (= a support which doubles as an anode), and the substrate **6** (col. 4, lines 49-52), such that a desired modification of the substrate occurs (= electroplating) [col. 4, lines 52-57],

wherein the mask comprises at least two different materials where the material that is brought in proximity to or in contact with the substrate is less conformable (= an elastomeric dielectric material) [col. 4, lines 43-46] than another material (= the support may instead be porous or otherwise perforated material through which deposition material will pass) [col. 3, lines 18-22] from which the mask is comprised.

The mask is an electrodeless mask (= anodeless instant mask) [col. 4, lines 23-25].

The mask comprises an electrode that is used for deposition or etching (= a support **12** which doubles as an anode and a substrate **6** which doubles as a cathode) [col. 4, lines 49-52].

The desired modification comprises a selectively deposit material (= Fig. 2B).

The process additionally comprising a planarization of the deposited material (=

the entire two-material layer is then planarized to achieve precise thickness and flatness) [col. 4, lines 65-67; and Fig. 2D].

The mask is used to selectively deposit material (col. 4, lines 55-57; and Fig. 2B) and an etching operation is performed after the deposition to reduce the presence of any unwanted depositions (= the entire two-material layer is then planarized to achieve precise thickness and flatness) [col. 4, lines 65-67; and Fig. 2D].

The process additionally comprises a planarization operation (= the entire two-material layer is then planarized to achieve precise thickness and flatness) [col. 4, lines 65-67; and Fig. 2D].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **20 and 21** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Cohen et al.** (US Patent No. 7,160,429 B2) as applied to claims 14-19 above.

Cohen is as applied above and incorporated herein.

The process of Cohen differs from the instant invention because Cohen does not disclose wherein the desired modification comprises a selective etching material from the substrate, as recited in claim 20.

Cohen teaches that various embodiments, alternatives, and techniques disclosed herein may be used in combination with electrochemical fabrication techniques that use different types of patterning masks and masking techniques. For example, conformable contact masks and masking operations may be used, proximity masks and masking operations (i.e. operations that use masks that at least partially selectively shield a substrate by their proximity to the substrate even if contact is not made) may be used, non-conformable masks and masking operations (i.e. masks and operations based on masks whose contact surfaces are not significantly conformable) may be used, and adhered masks and masking operations (masks and operations that use masks that are adhered to a substrate onto which selective deposition or etching is to occur as opposed to only being contacted to it) may be used (col. 9, line 59 to col. 10, line 7).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the desired modification described by Cohen with wherein the desired modification comprises a selective etching material from the substrate because the use of conformable contact masks, non-conformable masks and adhered masks would have all been functionally equivalent to use onto which selective deposition or etching is to occur as taught by Cohen (col. 9, line 59 to col. 10, line 7).

Citations

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Jolly et al. (US Patent No. 5,395,508) is cited to teach bringing a mask into proximity to or into contact with the substrate so as to form at least one electrochemical process pocket having a desired registration with respect to any previous depositions and providing a desired electrolyte within the at least one electrochemical process pocket (col. 4, lines 24-41).

JP 57-67193 is cited to teach a mask for partial plating is composed of a rigid member **10** and an elastic mask member **12** adhered to member **10**. The member **12** contacts and sticks to a material to be placed to enable sealing (abstract).

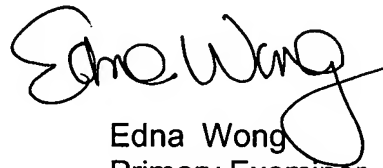
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "Edna Wong". The signature is fluid and cursive, with a large loop at the end of the last name.

Edna Wong
Primary Examiner
Art Unit 1753

EW
May 22, 2007